



# BX306 GNSS Kit

## 433/915MHz Radio Version

### Overview

The BX306 is a cost-efficient GNSS RTK board for cm-level positioning and providing accurate raw measurement output, which can be integrated with autopilots and inertial navigation units.

The BX306 board supports three constellations (GPS L1/L2, GLONASS G1/G2, and BeiDou B1/B2) to improve the continuity and reliability of the RTK solution even in harsh environments. It features compatibility with other GNSS boards in the market via flexible interfaces, smart hardware design, and commonly used log/command formats.



### In the Box

- 2x BX306 RTK receivers
- 2x GNSS antennas with cables
- 2x 433 [or 915] MHz radio modules with cables
- 2x LVTTTL serial ports
- 2x 20-pin external cables
- 2x Power cables

### Key Features

Supports GPS L1/L2, GLONASS G1/G2, and BeiDou B1/B2

Up to 20Hz RTK solution and raw data output

Supports IMU raw data output

Pin-to-pin compatible with NovAtel OEM615

Log/command compatible with NovAtel protocol

Supports event mark and PPS

Serial ports with LVTTTL

External antenna input through MCX connector

Data output: NMEA-0183 and Tersus binary format

Correction: RTCM 2.x/3.x/CMR/CMR+

Easy to integrate with Pixhawk and other autopilots

### The 433/915MHz Radios

The radio is available in 915 MHz (US) and 433 MHz (Europe). The two radio transmitters/receivers in a RTK system need to be able to pass RTCM data from the base station to the rover receiver. The bundle includes a basic low-power radio link that is designed for short baseline applications. It has a transmit power of up to 100mW, which can support communications over approximately one kilometer range.



# Technical Specifications

## Performance

|  |                       |
|--|-----------------------|
| Frequencies:                           |                       |
| GPS L1/L2, GLONASS G1/G2, BeiDou B1/B2 |                       |
| Standard Positioning Accuracy:         |                       |
| – Horizontal (RMS):                    | 1.5m                  |
| – Vertical (RMS):                      | 3.0m                  |
| RTK Positioning Accuracy:              |                       |
| – Horizontal (RMS):                    | 10mm+1ppm             |
| – Vertical (RMS):                      | 15mm+1ppm             |
| Observation Accuracy:                  |                       |
| – C/A Code (zenith direction):         | 10cm                  |
| – P Code (zenith direction):           | 10cm                  |
| – Carrier Phase (zenith direction):    | 1mm                   |
| Time To First Fix (TTFF):              |                       |
| – Cold Start:                          | <50s                  |
| – Warm Start:                          | <30s                  |
| Timing Accuracy (RMS):                 | 20ns                  |
| Velocity Accuracy (RMS):               | 0.03m/s               |
| Initialization (typical):              | <10s                  |
| Initialization Reliability:            | >99.9%                |
| Correction:                            | RTCM 2.x/3.x/CMR/CMR+ |
| Max. Update Rate:                      | 20Hz                  |

## Communication

|               |                   |
|---------------|-------------------|
| Serial Ports: | LVTTL x2          |
| USB Ports:    | USB device x1     |
| CAN Ports:    | ISO/DIS 11898 x2* |
| PPS Ports:    | LVTTL x1          |
| Event Mark:   | LVTTL x2*         |

\* This port's function is related to FW version

## Physical

|                                 |                 |
|---------------------------------|-----------------|
| Input Voltage:                  | 3.3V DC         |
| Power Consumption (typical):    | 2.8W            |
| Active Antenna Input Impedance: | 50Ω             |
| Size:                           | 46x71x12mm      |
| Weight:                         | 23g             |
| Antenna Connector:              | MCX female x1   |
| COM Baud Rate:                  | Up to 921600bps |
| Operating Temperature:          | -40°C ~ +85°C   |

